

Bovine TB News



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Phil Durst, MSU Extension Dairy Educator – NE Michigan,
Extension Affiliate of the College of Veterinary Medicine
Dr. Dan Grooms, MSU CVM Department of Large Animal Clinical Sciences

Michigan Update:

Averill named as Michigan's new TB Eradication Coordinator

Dr. James J. Averill will be joining the MDA Animal Industry Division on Monday, August 10 as the Bovine TB Eradication Program Coordinator.

Averill was most recently employed by MDCH as the Deputy Pandemic Influenza Coordinator. In this role, he organized the development of the Michigan Pandemic Influenza Coordinating Committee (PICC), tasked with ensuring preparation for a pandemic flu event. MDA is a participant on this Committee and strongly supports the objectives. Concurrent to his work at MDCH, Averill completed a Ph.D in epidemiology at MSU, conducting research for his dissertation titled "Use of Antimicrobial Agents in Dairy Calves and the Public Health Concern."

Dr. James Averill is a 2001 graduate of the College of Veterinary Medicine at Michigan State University. Upon graduation Dr. Averill went to work for the United States Department of Agriculture with Animal and Plant Health Inspection Services in Michigan and also worked part time on the weekends at a small animal emergency clinic. Dr. Averill is a native of Maine, where he was born and raised on a dairy/sheep farm.

Averill also serves as advisor to the Pre-Veterinary Medical Association at Michigan State University, and served as National Advisor to the American Pre-Veterinary Medical Association from 2006 - 2008. He brings valuable skills in epidemiology, population medicine, public health, communication, and leadership with him.

Memorandum of Understanding with USDA and Michigan Zoning Order

Progress is being made in the negotiations with USDA on the new Memorandum of Understanding (MOU) between MDA, MDNR and USDA VS. The proposed Zoning Order is available on-line at <http://www.michigan.gov/emergingdiseases> . Select Proposed Zoning Order for Bovine TB, July 2009 under Spotlight. In addition, in that same section is a button for the comment form so that you can make "Comments and suggestions on the proposal to change the zonal boundaries of the Bovine Tuberculosis Modified Accredited and Modified Accredited Advanced Zones in Michigan."

Wildlife Risk Assessment continues

Farms in the high risk MAZ are being assessed as to their risk factors and plans to reduce risk are being developed. By August 4, 342 cattle producers had called and requested a wildlife risk assessment. Of those, just over half (173) have had the assessment completed. Ninety percent (156) of those farms assessed have had a plan developed and 115 have been verified so far. Sales of breeder stock from risk verified farms will be considered low risk and buyers from out of the MAZ will not be targeted for surveillance testing. Assessments of other farms scheduled will continue.

The priority for assessment in 2009 is on MAZ sellers of breeding stock. Anyone who is such and who has not called to schedule a Wildlife Risk Assessment should do so as soon as possible by calling 517-241-0236. The priority shifts in 2010 to sellers of feeders from townships where there has been a high prevalence of bTB in wild deer in the four county area of Montmorency, Alpena, Alcona and Oscoda. In 2011, sellers of feeders in the remaining MAZ will be the priority.

When the new zoning, and redesignation of the counties of Antrim, Charlevoix, Cheboygan, Crawford, Emmet and Otsego as MAAZ subzone 1, is effective, cattle producers should have a Wildlife Risk Assessment done to be able to ship breeder and feeder stock within the MAAZ without further movement testing, or to ship cattle less than 6 months of age into another zone without additional testing.

Source: Michigan Department of Agriculture

National Update:

Future of the National Tuberculosis Conference held

Over 130 attended the special USAHA meeting on the Future of the National Tuberculosis Program. This turnout exceeded the estimations or hopes of the program planners and is indicative of the interest in this topic and the recognition that the national TB program must change. At the meeting, Dr. John Clifford, Deputy Administrator for APHIS VS, presented a draft entitled "A New Approach for Managing Bovine Tuberculosis: Veterinary Services' Proposed Action Plan." In this document, USDA VS laid out five things that the plan is intended to accomplish. Following is a direct transcription from the document:

The action plan will:

1. Reduce the introduction of TB into the US national herd from imported animals and wildlife by:
 - Applying additional requirements to cattle imports from Mexico
 - Enhancing efforts to mitigate risks from wildlife
2. Enhance TB surveillance by:
 - Crafting a comprehensive national surveillance plan
 - Accelerating diagnostic test development to support surveillance
3. Increase options for managing TB-affected herds by:
 - Conducting epidemiological investigations and assessing individual herd risk
 - Applying whole-herd depopulation judiciously and developing alternative control strategies
 - Applying animal identification standards to meet animal identification needs
4. Modernize the regulatory framework to allow VS to focus resources where the disease exists.

5. Transition the TB program from a State classification system to a science-based zoning approach to address disease risk.

In addition, participants at the conference provided input in six major areas of TB:

- Importation of Infected Cattle
- Wildlife-associated Disease Transmission
- Diagnostic Testing Needs and Limitations
- Surveillance, Traceability and Investigation Deficiencies
- Modernizing Regulations, and
- Disease Control Approach

The proposal of USDA VS may be modified and then will be published in the Federal Register with an official comment period. However, at present, the draft document is not available on-line. In addition, a summary from the Future conference will be prepared by USAHA and posted on its website. When either of documents becomes available on-line, we will report the link here.

Source: USAHA

Reports from the USDA TB Listening Sessions now on-line

Last December, USDA conducted six “Listening Sessions” on bovine TB. Those sessions were held in California, Michigan, Minnesota, New Mexico, Texas and Washington DC. The input from those sessions is now available on-line at:

http://www.aphis.usda.gov/newsroom/hot_issues/bovine_tuberculosis/tb_ls.shtml . Scroll to the bottom of the page and click on the session for which you desire to read the input.

Source: USDA

USDA approved \$250,000 for bTB serum bank

On July 17, USDA announced the designation of funds to further develop a bTB serum bank at the National Veterinary Services Laboratory in Ames, IA. Serum samples from well-characterized positive cattle and cervids will then be made available to companies which are working on the development of diagnostic tests based on serum analysis.

The U.S. will collaborate with Mexico, Canada, and the United Kingdom to collect and receive serum and tissue samples from TB-infected cattle. Samples from infected cattle will be collected during herd depopulations; from known infected herds being managed by test and removal, and at slaughter. Samples from TB positive white tailed deer, if available, will be obtained from naturally infected animals located in endemic areas in the U.S. and Canada.

This action by USDA was called for in resolutions that originated from the USAHA TB Committee and were passed by USAHA in several years, first relating to cervid serum and in 2008, relating to serum from both cattle and cervids.

Source: High Plains/Midwest Ag Journal on-line

Fate of affected Nebraska herd debated in the US Senate.

The fate of the Nebraska beef herd of approximately 800 head in which two animals were found infected with bTB after traceback from a slaughter plant infected carcass, is still undecided. Indemnity for depopulation of this herd would cost roughly \$1 M. USDA has said that they want to use the tool of depopulation judiciously. But Nebraska US Senator Mike Johannes is adamant in saying that it is "absolutely critical that the infected herd be depopulated immediately." He is seeking to have \$3 M added to the Department of Agriculture budget to buy this herd and any other affected herds.

Meanwhile, testing of herds with any potential contact to animals from the index herd is continuing. As of July 27, 8900 animals had been tested but 21 herds remained quarantined.

*Source: BeatriceDailySun.com
and Nebraska Department of Agriculture*

CWD prevalence up in state deer herd, DNR reports

White-tailed deer which tested positive for chronic wasting disease went up significantly last year in the "core area" of south central Wisconsin, according to a report by the Wisconsin Department of Natural Resources. The estimate of CWD prevalence in adult bucks 2 ½ years old or older went from 10 percent in 2007 to 15.5 percent in 2008, while the prevalence in yearling bucks went from 3 percent in 2007 to 6 percent in 2008.

It was first discovered in Wisconsin in 2002. Since then, 1,172 free-ranging deer have tested positive for CWD in Wisconsin out of almost 152,000 deer tested. CWD project leader Davin Lopez said "We need to minimize the extent and spread of the disease in our treasured deer herd. Science tells us the only practical tool to do that is to reduce deer density and therefore deer to deer contact." Infection rates in the Wisconsin herd showed substantial variability from one year to the next, but there was evidence of a trend pointing to a 4 percent increase every year.

Source: The Capital Times

International Update:

Bovine TB in Marlborough, New Zealand down to one herd

Bovine tuberculosis is at its lowest level in Marlborough in years, with just one infected herd in the region that has about 1200 herds. This is down from about 35 infected herds in the mid-1980s. TB Free Marlborough committee chairman Chris Bowron said the Animal Health Board had carried out extensive poisoning and trapping operations in Marlborough and throughout New Zealand to stop the spread of the disease, as part of its Bovine TB Strategy.

However, the disease could still be found in vectors (animals that carry the disease, such as possums and ferrets) at the top of the Waihopai Valley, Mr Bowron said. Nearly \$82 million is spent each year on controlling TB. It is fuelled by a high possum and ferret population. There are 129 infected herds in New Zealand, about 0.03 per cent of all herds. The Bovine TB strategy, which aims to have no more than 0.2 per cent, or 80 herds, infected by 2013, is under review.

Source: The Marlborough Express

Scotland looks to apply for TB-free status

Unlike neighboring England and Wales, Scotland has kept bTB incidence low enough to be able to apply to the EU Commission in Brussels for TB-free status. In order to do so, they would have to impose pre-movement testing on all cattle entering the country. Currently, cattle from high-risk areas in England and Wales are required to have testing both pre-movement and post-movement. Status change has not been applied for yet as study is being done on the economic impact of probable reduced numbers of cattle being imported for slaughter. TB-free status would give Scotland an edge over the rest of the UK.

Source: Farmers Weekly Interactive fwi.co.uk

Research Update:

Genetics of tuberculosis in Irish Holstein-Friesian dairy herds.
Bermingham ML, et al. J Dairy Sci. 2009 Jul;92(7):3447-56.

The objective of this study was to quantify the genetic variation present among Irish Holstein-Friesian dairy herds in their susceptibility to *M. bovis* infection. A total of 15,182 cow and 8,104 heifer single intradermal comparative tuberculin test records from November 1, 2002, to October 31, 2005, were evaluated. Linear animal models, and sire and animal threshold models were used to estimate the variance components for susceptibility to *M. bovis*-purified protein derivative (PPD) responsiveness and confirmed *M. bovis* infection. The threshold animal model produced heritability estimates of 0.14 in cows and 0.12 in heifers for susceptibility to *M. bovis*-PPD responsiveness, and 0.18 in cows for confirmed *M. bovis* infection susceptibility.

Therefore, exploitable genetic variation exists among Irish dairy cows for susceptibility to *M. bovis* infection. Sire rankings from the linear and threshold animal models were similar, indicating that either model could be used for the analysis of susceptibility to *M. bovis*-PPD responsiveness.

This study supports the concept that, as with most diseases, there is a certain level of genetic susceptibility to bTB. Potentially, this could be exploited to reduce susceptibility to bTB, thus aiding in the control of the disease.

Assessment of OmpATb as a novel antigen for the diagnosis of bovine tuberculosis.

Schiller I. et al. Clin Vaccine Immunol. 2009 Jul 8. [Epub ahead of print]

The development of new diagnostic tests with improved specificity and sensitivity is a high priority. In this study, Rv0899 (Outer membrane protein A of *Mycobacterium tuberculosis*, OmpATb) was evaluated as a stimulation antigen in a IFN-gamma release assay to diagnose bovine tuberculosis. OmpATb induced IFN-gamma responses in cattle experimentally infected with *M. bovis* as early and as persistently as ESAT-6 and CFP-10, the current lead diagnostic antigens used in IFN-gamma assays. In naturally infected cattle, OmpATb stimulated IFN-gamma production in 22 of 26 animals (85%). More importantly, OmpATb detected a portion of *M. bovis*-infected cattle which did not respond to ESAT-6 and CFP-10. Results indicate that OmpATb has the potential to enhance the sensitivity of previously described diagnostic tests based on ESAT-6 and CFP-10. The combined use of OmpATb, ESAT-6, CFP-10 and other proteins may achieve at least equal sensitivity compared with PPD's, but at higher specificity.

Better sensitivity and specificity of bTB tests would significantly enhance the ability to control the disease and reduce eradication costs. This study demonstrates the potential that new technology has to offer in developing new tests for bTB.

Co-Infection of Cattle with Fasciola hepatica and Mycobacterium bovis - Immunological Consequences.

Flynn RJ et al. Transbound Emerg Dis. 2009 Aug;56(6-7):269-74.

Fasciola hepatica, the liver fluke, is a common parasite of cattle in much of the world. It has been shown that cattle infected with F. hepatica have altered interferon (IFN)-gamma responsiveness to M. bovis BCG infection. In this study, the immune response to virulent bTB in animals co-infected with F. hepatica was studied. Similar findings were found with virulent M. bovis following aerosol infection. The epidemiological significance of these findings requires exploration, particularly in view of the high prevalence of F. hepatica infection in areas where eradication has proved difficult.

This study shows how the presence of other disease conditions may interfere with bTB diagnosis. Although F. hepatica is not typically a major problem in NE Michigan, other species of liver flukes can be problematic.

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This newsletter is meant to keep you updated about bTB in Michigan and elsewhere and to answer questions you may have. If you have a question, please send it by return e-mail. Address questions or comments to Phil Durst at 989-826-1160 or durstp@msu.edu.

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